**MEDLI2 SSE Sensor Simulator Arduino Firmware**

**Operation Manual**

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**Introduction**

The “serial\_parser.ino” sketch constitutes the firmware for the Arduino Micro on the MEDLI2 SSE Sensor Simulator board. It is operated with simple text commands through a serial port; those commands can also be sent using the Python wrapper functions found in “serial\_wrapper.py.” If using a serial monitor to operate the firmware, the carriage return character must be set to “Newline.”

**Overview**

At the top of file, the Arduino Micro firmware has a large table showing the silkscreen names of the test headers for each channel. This table is specific to the current implementation of the MEDLI2 SSE Sensor Simulator board. Following the test header mappings table is a version history, where the version number is (year).(month).(day).

The firmware has a number of commands available in the main menu. These can be used by simply entering the name of the command, in either all lowercase or all uppercase. The firmware will echo commands back to the user, preceded by ‘>’. Invalid commands will be echoed but otherwise ignored. The commands available to the user are as follows:

1. **SET** – Sets the voltages on all 44 channels simultaneously. Prompts the user for 44 floats, separated by commas.
2. **SETSINGLE –** Sets the voltage on a single channel. Prompts the user for a channel index (0 – 43) and then a float.
3. **RANDOM –** Sets all channels to a random voltage within +/-10V.
4. **DEFAULT –** Sets all channels to .1 x [channel index]. Ex: channel 0 is set to 0V, channel 1 is set to .1V, channel 2 is set to .2V.
5. **CLEAR –** Clears all channels to the clear value, -10V.
6. **BOARDID –** Displays the ID # of the Arduino, used to differentiate between the copies of the MEDLI2 SSE Sensor Simulator board.
7. **SETBOARDID –** Sets the board ID variable and saves it in EEPROM. Prompts the user for an integer.
8. **RTDMUX –** Sets the 5 MUX bits for the RTD board. Prompts the user for 5 integers, separated by commas. Takes LSB first.
9. **VERSION –** Displays version information.